Workshop on Phase 3 Reformulated Gasoline and the Predictive Model

November 15, 1999

Sacramento, CA

Agenda

- Introductions
- ARB Staff Proposals
- Other Presentations
  - Energy Commission
  - Autos
  - Ethanol / Oxygenate
  - Oils
  - Others
- Next Meeting

Goals

- Provide Flexibility, for removing MTBE while preserving real-world benefits
- Obtain additional reductions that are technically and economically reasonable

Proposed CaRFG3 Specs

Property	Flat Limits		Averaging Limits		Cap Limits	
	Original	Proposed	Original	Proposed	Original	Proposed
RVP, psi, max	7.0	7.0(1)	na(2)	no change	7.0	6.4-7.2
Benzene, vol. %, max	1.00	0.80	0.80	0.70	1.20	1.10
Sulfur, ppmw, max	40	20	30	15	80	60/30(3)
Aromatic HC, vol. %, max	25	no change	22	no change	30	35
Olefins, vol. %, max	6.0	no change	4.0	no change	10	no change
Oxygen, wt. %	1.8 to 2.2	no change	na(2)	no change	0-3.5	0-3.7(4)
T50 ^{o}F, max	210	211	200	201	220	225
T90 ^{o}F, max	300	305	290	295	330	335
Driveability Index(5)	none	1225	na(2)	na(2)	none	none

1) Equal to 6.9 psi if using the evaporative element of the Predictive Model
2) Not Applicable
3) 60 ppmw will apply December 31, 2002; 30 ppmw will apply December 31, 2004
4) If the gasoline contains more than 3.5 weight percent but no more than 10 volume percent ethanol, the cap is 3.7 weight percent
5) Driveability Index=1.5*T10+3*T50+T90+20*(wt% oxygen)

Emissions

Pollutant	1998 Average In-Use Fuel	Future Representative In-Use Fuel Based on Flat Limits	Difference
NOx	0.3%	-2.0%	-2.3%
Exhaust Hydrocarbons	-3.6%	-3.7%	-0.1%
Evaporative Hydrocarbons	-6.6%	-6.6%	0%
Total Hydrocarbons	-4.5%	-4.6%	-0.1%
Potency-Weighted Toxics	-8.0%	-15.2%	-7.2%

	1998 Average In-Use Fuel		Future Representative In-Use Fuel Based on Flat Limits		Difference
Pollutant	2005	2010	2005	2010	2005
NOx	2.1	1.7	-16.6	-13.6	-18.7
Exhaust Hydrocarbons	-16.0	-9.3	-16.5	-9.6	-0.5
Evaporative Hydrocarbons	-14.4	-11.3	-14.4	-11.3	0
Total Hydrocarbons	-30.4	-20.6	-30.9	-20.9	-0.5

Economics

- Estimated capital costs to refiners: $1 billion
- Overall estimated costs
  - 1st Year: 4-7 cents/gallon
  - 2nd Year: 2-6 cents/gallon
- CEC economic analysis expected before Hearing
- UC economic impact analysis expected before Hearing

Presentations by Others

California Energy Commission

Automobile Representatives

Ethanol Representatives

WSPA Representatives

Other Presentations